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|  | INTERNATIONAL TELECOMMUNICATION UNION  **TELECOMMUNICATION STANDARDIZATION SECTOR**  STUDY PERIOD 2025-2028 | | | TSAG-TD25 |
| TSAG |
| Original: English |
|  | |  | | Geneva, 26-30 May 2025 |
| **TD** | | | | |
| **Source:** | | Chair, ITU-T Study Group 13 | | |
| **Title:** | | ITU-T SG13 Lead Study Group Report | | |
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| **Abstract:** | This document contains the summary status and progress report on lead SG activities of ITU-T SG13 since July 2024 (last lead SG report to TSAG). It complements the information already delivered to the May 2025 TSAG meeting via a liaison statements  (TDs [73](https://www.itu.int/md/T25-TSAG-250526-TD-GEN-0073/en), [74](https://www.itu.int/md/T25-TSAG-250526-TD-GEN-0074/en), [75](https://www.itu.int/md/T25-TSAG-250526-TD-GEN-0075/en), [76](https://www.itu.int/md/T25-TSAG-250526-TD-GEN-0076/en)/TSAG). |

**Action**: Review, note, take actions requested by LSs in TSAG-TDs [73](https://www.itu.int/md/T25-TSAG-250526-TD-GEN-0073/en), [74](https://www.itu.int/md/T25-TSAG-250526-TD-GEN-0074/en), [75](https://www.itu.int/md/T25-TSAG-250526-TD-GEN-0075/en).

# Meetings and Events

| **Meeting/Event** | **No. of** | **Dates** | **Place** |
| --- | --- | --- | --- |
| Study Group 13 | 1 | 3-14 March 2025 | Geneva, Switzerland |
| SG13 Regional Group for Africa  (SG13RG-AFR) | 1 | 30 January 2025 | Virtual |
| JCA-IMT2020 and Beyond | 1 | 5 March 2025 | Geneva, Switzerland |
| JCA-AI/ML | 2 | 13 November 2024 | Virtual |
| 7 March 2025 | Geneva, Switzerland |
| FG-AINN | 2 | 6-7 November 2024 | Virtual |
| 14-15 April 2025 | Istanbul, Türkiye |
| Workshops: | 1 |  |  |
| Workshop “[At the crossroads of Standards and Research: AI/ML datasets for future networks](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/2024/0716/Pages/default.aspx)" | 16 July 2024, morning | Geneva, Switzerland |

Above table doesn’t include the stand-alone interim rapporteur groups meetings as well as the permanent ad-hocs and correspondence groups meetings.

# Outputs

## WP1 (3 Questions on IMT systems)

### Outputs (2025, till 19 May 2025, the day this report was finalized): 6 Recommendations

– Y.3145: Application addressing in multi-access edge computing in IMT-2020 networks and beyond

– Y.3211: Fixed, mobile and satellite convergence - Requirements of supporting airborne broadband communication for IMT-2020 networks and beyond (TAP approved in 03/2025)

– Y.3217: Fixed, mobile and satellite convergence – Peer-to-peer services for IMT-2020 networks and beyond

– Y.3218: Fixed, mobile and satellite convergence – Service scheduling for IMT-2020 networks and beyond

– Y.3219: Fixed, mobile and satellite convergence – Deterministic networking for IMT-2020 networks and beyond

– Y.3220: Fixed, mobile and satellite convergence – Location service enhancement for IMT-2020 networks and beyond

### Outputs (2024): 14 Recommendations

– Y.3401: Coordination of networking and computing in IMT-2020 networks and beyond - Capability framework

– Y.3144: Future networks including IMT-2020 - Requirements and functional architecture of distributed core network

– Y.3187: Architectural framework for Machine Learning Function Orchestrator in future networks including IMT-2020

– Y.3163: Network accelerating for edge computing in IMT-2020 networks and beyond

– Y.3164: Requirement of joint development and operation for IMT-2020 networks and beyond

– Y.3092: Digital twin for management and orchestration in IMT-2020 networks and beyond

– Y.3208: Fixed, mobile and satellite convergence - Session management with satellite backhaul for IMT-2020 networks and beyond

– Y.3209: Fixed, mobile and satellite convergence - Traffic scheduling for IMT-2020 networks and beyond

– Y.3210: Fixed, mobile and satellite convergence - Distributed ledger technology for IMT-2020 networks and beyond

– Y.3212: Fixed, mobile and satellite convergence - Requirements of supporting High Altitude Platform for IMT-2020 networks and beyond

– Y.3213: Fixed, mobile and satellite convergence - Policy control for IMT-2020 networks and beyond

– Y.3214: Fixed, mobile and satellite convergence - Service function chain (SFC) for IMT-2020 networks and beyond

– Y.3215: Fixed, mobile and satellite convergence - Requirements of network sharing for IMT-2020 networks and beyond

– Y.3216: Fixed, mobile and satellite convergence - Distributed core network for IMT-2020 networks and beyond

## WP2 (3 Questions for Cloud Computing and Data Handling)

### **Outputs (2024): 3 Recommendations**

– Y.3552: Cloud computing – Functional requirements of edge cloud

– Y.3553: Cloud Computing - Distributed Cloud Functional Architecture

– Y.3554: Cloud Computing - Functional framework of Platform as a Service management for cloud native applications

## WP3 (3 Questions on Future Networks)

### Outputs (2025): 6 Recommendations

– Y.2348: Functional architecture of network resource sharing based on distributed ledger technology (TAP approved in 03/2025)

– Y.3660: Big data driven networking - Functional requirements and functional architecture of operation aspect for public network integrated non-public network service​

– Y.3659: Big data driven networking - requirements, architecture and mechanism of application awareness

– Y.3681: Requirements of human-like networking

– Y.3087: Self-controlled identity based on blockchain – Functional requirements and architecture

– Y.3088: Information-centric networking in networks beyond IMT-2020 - Requirements and functional framework to support distributed ledger technology

### Outputs (2024): 10 Recommendations

* Y.2776: Deep packet inspection - intelligent management and maintenance of policy information base (TAP approved in 07/2024)
* Y.2347: Requirements of next generation network evolution for support network and cloud interworking
* Y.3326: Requirements and framework of distributed software-defined network intelligence capability enhancement based on distributed ledger technology
* Y.2349: Requirements and framework of multi-dimensional resource matching of next generation network evolution based on distributed ledger technology
* Y.2350: Requirements of next generation network evolution (NGNe) to support container-based network entities
* Y.3046: Requirements and framework of service aware network for network service provider
* Y.3047: Requirements and capability of network awareness based on cloud computing
* Y.3084: Information-centric networking in networks beyond IMT-2020 - Requirements and functional framework to support immersive live experience services
* Y.3085: Information-centric networking in networks beyond IMT-2020 - Requirements and functional framework enhancement to support deterministic communication services
* Y.3086: Information-centric networking in networks beyond IMT-2020 - Requirements and functional framework enhancement to support machine learning

## WP4 (4 Questions for Scenarios, Deployment and Technologies)

### Outputs (2025): 7 Recommendations

* Y.2361: Requirements for fostering telecommunication/ICT services universalization in developing countries using open networks and AI models
* Y.3827: Quantum key distribution networks - Measurement methodology for QoS parameters
* Y.3828: Integration of quantum key distribution network and user network supporting end-to-end modern cryptography services – requirements for quality of service assurance
* Y.3146: Functional architecture for QoS assurance of deterministic communication services in local area network for IMT-2020 and beyond
* Y.3147: QoS requirements and framework of deterministic communication for remote device control services over IMT-2020 and beyond
* Y.3804: Quantum key distribution networks - Control and management (under AAP approval process)
* Y.3261: Framework of trust level assessment for trustworthy networking (determined in 03/2025, under TAP approval process)

### Outputs (2024): 15 Recommendations

* Y.2256: Overview of Unmanned Smart Farm based on networks
* Y.2360: Requirements for Integrating Demographics Data for New and Emerging Technologies in Developing Countries
* Y.3143: Quality of service assurance requirements and framework for smart healthcare supported by IMT-2020 and beyond
* Y.3822: Quantum key distribution networks - Requirements for autonomic quality of service assurance
* Y.3023: Framework of distributed and virtualized energy storage systems
* Y.3260: Assessing trust evaluation models for telecommunication networks
* Y.3824: Quantum key distribution network federation - Reference models
* Y.3825: Integration of quantum key distribution network and time-sensitive network - framework
* Y.3826: Integration of quantum key distribution network and user network supporting end-to-end modern cryptography services – framework
* Y.3808: Integration of quantum key distribution network and secure storage network
* Y.3810: Quantum key distribution network interworking – Framework
* Y.3813: Quantum key distribution network interworking - Functional requirements
* Y.3817: Quantum key distribution network interworking - Requirements for quality of service assurance
* Y.3818: Quantum key distribution network interworking - Architecture
* Y.3820: Quantum key distribution network Interworking - Software defined networking control

## Supplements (3):

* Sup. 84 (Y.3050-series): Standardization roadmap on trustworthy networking and services
* Sup. 59 (Y.3100-series): IMT-2020 and beyond standardization roadmap (revised)
* Sup. 89 (Y.3800-series): Analysis of Synchronization in Quantum Key Distribution Networks

## Technical Reports (3):

* Datasets standardization approaches for datasets applicable for AI/ML in networks (First Edition, 22 July 2024)
* Standardization consideration of Satellite-based QKDN
* Potential requirements and methodology for deploying and assessing Generative AI models in telecom networks

## Questionnaires (3)

* Requirements and Framework for the exploitation of Big Data/Artificial Intelligence technologies in developing countries (closed on 31 December 2024)
* Migrating existing mobile network technologies to IMT-2020 and beyond (of 26 July 2024)
* Use Cases of services universalization in developing countries using open networks and AI models (of 14 March 2025)

# Future **Meeting Plans**

* + Geneva, 14-25 July 2025, SG13 co-located rapporteur group meetings
  + Geneva, 25 July 2025, WP1/13, WP2/13, WP3/13, WP4/13 meetings
  + Geneva, second half of October 2025, SG13

# Implementation of the WTSA-24 decisions

In response to the WTSA-24 Resolution 92 (*Enhancing the standardization activities in the ITU Telecommunication Standardization Sector related to non-radio aspects of international mobile telecommunications*) SG13

* + Maintains, supports and promotes the work of *the JCA-IMT2020 and Beyond*
  + Through the **JCA-IMT2020** regularly updates and maintains [the online roadmap](https://www.itu.int/itu-t/landscape/?topic=tx379&group=g&search_text=) with IMT-2020 and Beyond standardization efforts taken place around the world. Roadmap currently includes **844** publications.
  + Published the [Supplement 59](https://www.itu.int/rec/T-REC-Y.Sup59-202407-I) to Y.3100-series of Recommendations “IMT-2020 and Beyond standardization roadmap” (a snapshot as of July 2024 of the online roadmap mentioned above) and will continue its **annual publication**.

In response to the WTSA-24 Resolution 94 (*Standardization work in the ITU Telecommunication Standardization Sector for cloud-based event data technology*) the group reconfirmed the need in contributions on the cloud-based event data technology aspects to advance the work.

In line with WTSA-24 Resolution 99 (*Restructuring of the ITU Telecommunication Standardization Sector study groups*) SG13 established in March 2025 the **Correspondence Group on SG13 future direction (CG-SG13ftr)**. It met alongside SG13 meeting in March 2025 and had a brainstorming resulted in collection of ideas for future discussions, some technical particularities and operation of the group. In addition, the SG13RG-AFR convened the reginal surveys on participation of the African countries in SG13 and use by them the outputs of the group, that may contribute to shaping SG13 future work as well.

In implementation of the WTSA-24 Action 8, SG13 joined the Correspondence Group on Trust (involving SGs 13, 17 and 20).

# Coordination between Study Groups

Continuous coordination is going on with

* SG2 on management aspects (including the planning for joint meetings of the subgroups concerned, for example, coordination on draft Recommendation ITU-T Y.CNAO (Q20/13) and AITOM (SG2)),
* SG5 on energy saving aspects of networks,
* SG11 on multiple topics, including on *Network Softwarization Standardization Roadmap: implementation and application”*, launched by SG11.
* SG12 on QoS, QoS assurance and deterministic networking topics,
* SG17 on security aspects and QKDN, in particular via the newly created per SG13 proposal quantum-resistance-related study, a joint collaboration of Questions 6/13, 16/16, 11/17 and 15/17. To date group had a kick-off and first meetings alongside SG13 and SG17 meetings respectively.
* SG20 on IoT related work,
* SG21 on cloud computing and big data.
* Multi SG coordination: CG-Trust (SGs 13, 17 and 20)

# Report of lead SG activities

**WTSA-24 assigned to the SG13 the following lead Study Group roles:**

## Lead study group on future networks such as IMT systems, including IMT-2030 networks (non-radio related parts)

SG13 approved **27** new Recommendations and agreed one Supplement, listed above, has **70** work items in progress, maintains and promotes the [JCA-IMT2020](https://www.itu.int/en/ITU-T/jca/imt2020/Pages/default.aspx) operation (under revised in July 2024 Terms of Reference).

[Supplement 59](https://www.itu.int/rec/T-REC-Y.Sup59-202407-I) to Y.3100-series (07/2024) is the snapshot of the online database with collection of the IMT-2020 and Beyond related Recommendations, Supplements, technical specifications of other SDOs and various technical reports. Per WTSA-24 Resolution 92 this Supplement is annually revised, so currently had editions of 2020, 2022, 2023 and 2024 (in force).

Five Questions are currently dealing with IMT-2020 and beyond network aspects work in SG13.

A questionnaire on [migrating existing mobile network technologies to IMT-2020 and beyond](https://www.itu.int/md/T22-TSB-CIR-0235/en) was run in 2024.

SG13 has a regular interaction with ITU-R SGs 4 and 5 to inform about the progress of the work   
at our side.

With regards to the work towards IMT-2030, SG13 has initiated a set of technical reports covering such aspects as terms and definitions, requirements, technologies for IMT-2030 networks, fixed, mobile and satellite convergence to support IMT-2030 networks as consideration for future standardization efforts.

## SG13 has a leading role in fixed, mobile and satellite convergence.

This study topic is well progressing in SG13 with **14** Recommendations approved, as listed above. Work programme counts **24** work items on FMSC in progress.

SG13 has an ongoing work item, Supplement Y.supp.fmsc-roadmap "[Fixed, mobile and satellite convergence - Standardization roadmap](https://www.itu.int/ITU-T/workprog/wp_item.aspx?isn=21537)".

SG13 regularly informs ITU-R SG4 about its progress on a network part of FMSC work.

## SG13 was entrusted a leading SG role in computing, including cloud computing and data handling.

On the above technical topic, **4** Recommendations were developed and approved. **37** work items are under study.

The ad-hoc “*Future ICT Evolution for emerging Web Era*” successfully completed its mandate and concluded its activities in March 2025. The two deliverables, Technical Report *on Trustworthy Data Infrastructure for Web 3.0,* and Technical Report on *Network enhancement for supporting emerging Web technologies*, were entrusted to the SG13 Q16/13 and Q22/13 respectively for further elaboration.

## SG13 has a lead study group responsibility for artificial intelligence, including machine learning for future networks.

From this perspective, SG13 approved **3** Recommendations on machine learning/AI and one technical report on AI. There are **27** ongoing work items related to the machine learning and artificial intelligence in the SG13 work programme.

In addition, since July 2022 SG13 has been operating the JCA on Machine Learning. This JCA met 7 times to date (19 May 2025). It maintains two coordination projects: **machine learning standardization roadmap** and glossary of terms and definitions for machine learning.

In March 2025 SG13 agreed the JCA-AI/ML operation with the revised ToR and new name, Joint Coordination Activity on Artificial Intelligence, including Machine Learning ([JCA-AI/ML](https://www.itu.int/en/ITU-T/jca/ml/Pages/default.aspx)).

A technical report “*Potential requirements and methodology for deploying and assessing Generative AI models in telecom networks”* was agreed for publication on 14 March 2025.

Technical report, Edition 1, *“Datasets standardization approaches for datasets applicable for AI/ML in networks”* was agreed on 22 July 2024.

*The* *Focus Group on* *Artificial Intelligence Native for Telecommunication Networks (*[*FG-AINN*](https://www.itu.int/en/ITU-T/focusgroups/ainn/Pages/default.aspx)*),*set up in July 2024, had two meetings to date and is progressing the work on

* Definition Glossary
* Use-case
* Architecture of AI-Native Approach
* Gap Analysis
* Proof of Concepts (PoCs)

Questionnaires:

* A questionnaire *“*[*Requirements and Framework for the exploitation of Big Data/Artificial Intelligence technologies in developing countries*](https://www.itu.int/md/T22-TSB-CIR-0159/en)*”* was agreed for dissemination (to the attention of the developing countries) on 3 November 2023. It accepted inputs until 31 December 2024.
* Questionnaire on [use cases of services universalization in developing countries using open networks and AI models](https://www.itu.int/md/T25-TSB-CIR-0037/en), agreed for dispatching (to the attention of the developing countries) on 14 March 2025, accepts replies until 30 June 2025.

A workshop “[*At the crossroads of Standards and Research: AI/ML datasets for future networks*](https://www.itu.int/en/ITU-T/Workshops-and-Seminars/2024/0716/Pages/default.aspx)**”**, SG13 convened on 16 July 2024 in Geneva touched base on AI/ML use cases for future networks, name particular datasets and models (large language models,precise models or their combination), toolsets as well as collected some recommendations for future standardization and research activities.

The correspondence group *for datasets applicable for AI/ML in networks,* set up in July 2022, finished its first output (see above) and progresses the work on a second Edition of its deliverable - the technical insights and recommendations for a standardization approach for datasets applicable for AI/ML in networks. This group encompasses the participation from external to ITU experts. Its operation was extended till July 2025.

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